A Study on Artificial Intelligence in E-commerce: Roles and Usage in Application

Mahesh Kumar T[1], Blesson Varghese James[2], Mr. M. Senthur[3]

1. *Assistant Professor, School of Commerce, Finance and Accountancy CHRIST University, India, Mail Id: maheshkumart@christuniveristy.in*
2. *Assistant Professor & Head, School of Commerce, Finance and Accountancy, CHRIST University, India, Mail Id: blesson.james@christuniveristy.in*
3. *Assistant Professor, Department of Commerce (Professional Accounting), KPR College of Arts Science and Research, Coimbatore India, Tamilnadu. Email Id: ssenthur02@gmail.com*

Abstract

Artificial intelligence (AI) is a large subject of computer science devoted to the development of intelligent computers capable of doing tasks that would typically need human intelligence. Three cognitive processes—learning, reasoning, and self-correction—are the main topics of AI programming. Artificial intelligence is being used by a lot of e-commerce companies these days to better understand their clients and match their expectations. The most widely used branch of artificial intelligence (AI) is machine learning, which can interpret the vast amounts of data that e-commerce businesses gather and utilize to deliver insights that enhance consumer experience, expedite internal company processes, and fight fraud. Through a survey of research articles from various sources, the fundamental goal of this work is to identify some important applications of AI in e-commerce.

Keywords:
Artificial intelligence, E-Commerce, Machine learning, Efficienecy and Insights.

Introduction

The modern information age brings along new possibilities, software, and technological innovations usable in marketing and shopping. New technologies force companies to be more creative. Technologies help increase the efficiency, quality, and cost-effectiveness of services provided by businesses. Contemporary creativity is based primarily on the development of the so-called information and communication technologies, which have a major impact on the development of the business environment. The effectiveness of information and communication technologies depends on several factors, such as investment in human capital and an appropriate combination of e-commerce solutions. One sector where the digital transition and importance of e-commerce are particularly pronounced is retail, where digital tools, such as Websites, replace (to a certain extent), or complement physical commerce.

Role and benefits of Artificial Intelligence in E-commerce

AI plays a crucial role in revolutionizing the e-commerce industry. It offers numerous benefits and enhances various aspects of online commerce. Here are some key roles of AI in e-commerce:

Personalization: AI algorithms analyze customer data, including browsing history, purchase behaviour, and preferences, to provide personalized product recommendations and tailored shopping experiences. This helps businesses increase customer engagement and conversion rates.

Customer Service: AI-powered chatbots and virtual assistants enable businesses to provide 24/7 customer support. These AI assistants can answer customer queries assist with product

selection, and handle basic transactions, improving customer satisfaction and reducing response times.

Fraud Detection: AI algorithms can detect patterns and anomalies in real-time, helping to identify and prevent fraudulent activities such as payment fraud and account hacking. This enhances security and builds trust among customers.

Inventory Management: AI algorithms can analyze historical sales data, market trends, and other factors to optimize inventory levels, ensuring that products are available when and where they are needed.

Supply Chain Optimization: AI can optimize the supply chain by analyzing data from various sources, including suppliers, warehouses, and transportation systems. This helps businesses streamline operations, reduce costs, and improve delivery efficiency.

Using Artificial Intelligence in Ecommerce Companies

- **More targeted marketing and advertising:** Personalization is a top priority, according to surveyed retailers, but only 15% say they fully implemented personalization across channels.
- **Increased customer retention:** Delivering targeted marketing and advertising messages personalized for their customers can increase retention.
- **Seamless automation:** The goal of automation is to accomplish a task with as little human intervention as possible.

Efficient sales process: Using AI can help you create a more efficient sales process by gathering data about your customers, automate follow-up abandoned cart inquiries, and more.

AI Use Cases in Ecommerce

Personalized Product Recommendations

It easier than ever to collect and process customer data about their online shopping experience. Artificial intelligence is being used to offer personalized product recommendations based on past customer behaviour and lookalike customers.

Pricing Optimization

AI-enabled dynamic pricing is a strategy of changing your product price based on supply and demand.

Enhanced Customer Service

Virtual agents also have the advantage of being available 24/7, so low-level questions and issues can be addressed at any time of day, without making your customer wait

Customer Segmentation

Access to more business and customer data and processing power is enabling ecommerce operators to understand their customers and identify new trends better than ever.

Smart Logistics

Smart logistics or intelligent logistics, is all about using real-time information through sensors, RFID tags, and the like, for inventory management and to better forecast demand. Machine learning systems become smarter over time to build better predictions for their supply chain and logistics functions.

Sales and Demand Forecasting

Particularly in a world during and after COVID-19, want to plan your inventory on both real-time and historical data. Artificial intelligence can help to do just that. A recent that investment in real-time customer analytics will continue to be important to monitor and react to shifts in consumer demand that can be harnessed for price optimization or targeted marketing.

Conclusion

Artificial intelligence in Ecommerce is playing a leading role in driving innovative solutions and customer experiences. Some the leading use cases of artificial intelligence in Ecommerce is in the area of personalized shopping, product recommendations, and inventory management.

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